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ELEMENTARY FIELD WORK.

I.

ANY phase of school work referring to elementary education must be considered in terms of human development. Development, so far as understood, is the product of effort to satisfy individual needs, desires, curiosity, purpose.

In any organized process of elementary education there are three prime considerations: (1) the pupil, with his inherited organism and its possibilities, mental and physical, of development; (2) the teacher, with her realization of the developing possibilities of the human organism and her teaching ideal; (3) subject-matter, or the means and demands for individual action and effort in the developing or educating process.

The normal demands and opportunities for human effort and action, and hence the means for development, are found in the individual's immediate environment. This environment, although there are many points of intergradation and frequenty no sharp line of demarkation, may be divided into two great units: (1) that phase almost entirely dominated by man — the social environment; (2) that phase not dominated by man — the nature environment. In elementary education we might add a third — the schoolroom environment. Environment has always been a counteracting agency in formal elementary-school work, because of the tendency of the school to isolate the child from his true nature and social environment, and its interests, and confine him to the barren, narrow, and artificial environment of the classroom.

The needs, interests, and curiosities of the child in this broader, nature and social, environment are a part of his inherited legacy.[1] The things which excite his natural interests, quicken his pulse, and determine a full flow of blood to the entire nervous system — the absolute conditions for normal development — are found in his nature and social environment. The effort of the school should be to continue securing developing results by utilizing and extending the pupil's interests in his natural environment and directing these interests to intelligible ends. The vital part of the educating process is ever this interrelation of the pupil with his environment, nature and social, to the end that he may gain a certain intelligent, physical and mental, adjustment with his environmental situation. Adjustment with environment is not a static, but a dynamic, condition, and in the educating process the work must be of such a nature as will develop a dynamic quality of mind-action which can keep in adjustment with environment change and tendencies. Another principle requiring better-organized consideration, in elementary education, is that educating is a cumulative process from the standpoint of thought-content as well as from the standpoint of form and skill. Considerable attention has been given to progression in language, reading, number, and other forms of expression, but little has been done to utilize and unify progressive thought-content.

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[1] PARKER, *Talks on Pedagogy,* chap. i.

The child's observations and sense-experiences bear the same relation to his true thinking and his inferences as words and sentences do to the use of language in expressing thought: they are the vocabulary of thinking, and by addition, adjustment, and readjustment become the controls of human action. It is in the light of unity of thinking that field work should be attempted. Every teacher who has had experience in elementary field work is aware of the difficulties of following a special topic of study, owing to the overwhelming number of things which attract the various pupils and minimize or drown out the main point of the excursion. In the beginnings of field work we should not attempt to remedy this difficulty by limiting the pupil's experience nor by attempts at external inhibition, but to remedy it by some plan of work that will demand every experience and observation afforded by the area studied. Early childhood is the period for acquiring a great store of sense-experience as well as a spirit of enthusiasm and sense alertness, and this child range of interest and curiosity is a quality to be encouraged and extended, and not limited and thwarted by class-room isolation. As the pupil gains in power of investigation or power of holding some special problem in mind

— *i. e.,* when the answer to some problem becomes a mental desire — the selection of the required data from a more or less complex environment will care for itself.

SUBJECT IN FIELD WORK.

Every field environment is composed of a greater or less number of interrelated and intergraded earth-surface types, the physiognomy of which may be dominated by —

1. Topography: hills, mountains, plains, valleys.
2. Physiography: where climatic conditions have greatly modified the topographic aspect of surface by producing deserts, swamps, etc.
3. Vegetation: where the topographic aspect is largely obscured by conditions of vegetation, thickets, forests, etc.

Locally these various surface types are known as —

1. Shores and beaches of lakes and seas.
2. Lakes, lagoons, ponds, marsh, etc.
3. Gullies, ravines, river valleys, with their components of banks, bluffs, flood plains, etc.
4. Ridges, hills, mountains.
(5. Prairie, meadow, forest.)

Each of these areas may be considered as a unit of environment, and as such a unit for study.

The general physiognomy of any one of these units, with its detailed content of topography, minerals, plant life, and animal life, is the subject for student action and effort in field work. Granting, however, that the field affords a special wealth of subjects for study, we have yet to determine to what unified end or purpose this student effort is to tend. The mental influence of the most ideal area may be very small; the naturalist in the mountain is a very different being from the mountaineer who is striving to eke a livelihood from the same rugged environment.

Modern science has formulated two facts of far-reaching significance which may be considered guide-posts in field work: (1) that the surface of the earth is, and has been since its existence, undergoing constant change; (2) that the earth, with its land and water, was not arranged for the convenience of life, but that animals and plants had to live on the earth as they found it and to fit themselves to its changing conditions. This modern conception of a constantly changing surface, inhabited by an equally developing, changing, and adapting life, differs vastly from the idea of a created earth with life created to inhabit its varieties of topography. The development of a quality of mind-action to grasp intelligently this new conception is vastly different from and superior to the quality of mind which could appreciate the old conception and act under it. It is only through a wide acquaintance with the surface types and their content, and under proper direction, that this desired quality of mind-action can be realized.

The outline of subjects must be developed *pari passu* with the experiences of the student, and this arrangement need in no sense of logical development follow an outline from the standpoint of the adult. It may be fairly stated that the student ends where the adult's outline of subject begins. Considered from the standpoint of adult study or preparation for teaching, the outline for field study in any local environment should be, in general, somewhat as follows:

I. THE ENVIRONMENT AS A UNIT.

1. A topographic map of the area or environment under consideration.

2. Location of the best type topographies within the area: swamp, shore, ravine, prairie, etc. These represent the areas to be visited by class excursions.

3. The forces acting or having acted in the area to mold the present topography: influence of wind, of running water, of wave action, of glaciation, of vulcanism. The details of the method of work of each force being fully investigated.

II. A TYPE TOPOGRAPHY AS A UNIT FOR STUDY — A SWAMP.

1. Conditions essential to the formation of a swamp: (*a*) topographic, (*b*) structural, (*c*) climatic.

2. Various ways in which a swamp may originate: shore barrier, river oxbow, moraine tangle, sinking of earth.

3. The shore and water condition of each type of swamp at its genesis. (NOTE.— A lagoon or swamp formed by a barrier along a lakeshore would, at its genesis, be quite different from one formed in a tangle moraine of a glacier.)

4. The genesis, and environment conditions at time of genesis, of the particular swamp under consideration.

5. Changes that have taken place in the swamp since its genesis: (*a*) change in water conditions — fresh to stagnant; cause, (*b*) changes along

swamp border and bottom — soils, character, etc.; (*c*) changes in variety of life-content.

6. Probable life-content of swamp and its margin at its genesis; advent of new forms; zones of distribution.

7. Adaptation of animals and plants to a swamp environment: (*a*) adaptations for living in a swamp environment; (*b*) adaptations for reaching new areas.

8. Influence of life on the area.

9. The ultimate end of the swamp as a swamp, and the procession of life through the area during its topographic life-history.

A third phase of study, having reference to the living forms of the swamp, and intimately related to II, should be included in this field work.

III. STUDY OF LIVING FORMS, COMMON TO THE SWAMP AT THE TIME STUDIED, AS UNITS OF ENVIRONMENT.

1. A fair acquaintance with, and identification of, the living forms, animals and plants, common to the area.

2. Their habits and adaptations: (*a*) life-histories of types, food, enemies, living needs — cage and aquaria study; (*b*) morphology and physiology.

3. The particular swamp conditions which attract various living types to the area: (*a*) purely aquatic life; (*b*) amphibious; (*c*) terrestrial; and their seasonal and zonal distribution.

4. Adaptations to the changing conditions of the swamp: (*a*) migration; (*b*) change of habit and structure to meet changing conditions; (*c*) dying.

Admitting the above to be in a general way the study-content of field work and the working outline of the teacher we are still left to face the main question — the proper use of this subject in the educating process. Elementary education is to be considered in terms of human development. Development is the product of effort induced by an impulse of curiosity, interest, desire, need, accompanied by the reaction of a quickened pulse and a fuller flow of blood to the entire nervous system; this condition is an inherited quality of the human organism. The function of the school is to further this inheritance. The line of movement, so far as related to field work and science, is from miscellaneous sense-experience induced by curiosity to great world-controlling conceptions guided by intelligence.

Elementary field work, for the kindergarten and primary grades, should consist of visits, at different seasons of the year, to various type areas of the region. The child's curiosity and desire for sense-experience should have fullest play. Playing with waves and currents of water, piling sand, collecting pebbles, the noise of the breakers, the creeping of insects, the movements and songs of birds, the tracks of animals, the swimming of fishes, the business of the ant hill, the odors of plants, the colors of flowers, the feeding of insects on leaf and flower, the hiding-places and burrows of animals, and a multitude of objects and phenomena, are essential needs and experiences in the development of the normal pupil. These experiences are to be gained, not wholly through a sense of study, but through a sense of enjoyment; else the pupil misses the very nexus of child-life. These are the things that actually teach; the teacher needs but guide and direct, seek good environments, and care for the development of skill in expression.

Compare a day in a rich outdoor environment with the best that the class-room can offer, so far as it relates to the emotions essential to development. The return to the school should be accompanied by a limited, well-selected collection of representative materials — minerals, plants, animals. These should find a place in boxes, pots, cages, and aquaria to be used in class study and expression as required. This material, especially if cared for in pots, cages, and aquaria, begins to take on an individuality, leading to an interest in feeding, movement, breathing, etc. It is worth keeping in mind that this room material, the product of a class excursion, though it may be identical in character, is stronger in its education appeal to the class than material placed in the room by the teacher.

Thought of in terms of subject-matter, logically developed, the apparently rambling nature of this work is strikingly evident. Viewed in terms of human growth, the teacher having a definite directing purpose and line of movement, it assumes quite a different aspect. We have been greatly concerned and agitated over the continuity of study in spelling, reading, writing, language, number, etc., but the continuity of true educative thought-content has given less concern.

Growing out of this range of sense-experience there come periods when some one object or phenomenon holds the child's attention longer than another. This marks the first stage of specialization. By interest in running water the child inhibits the rest of phenomena and objects within his ranges of vision and adds to his running-water experiences further facts of force, change in color, variation in current, movement of materials, deposition, etc. Similarly, by his interest in some animal he inhibits all objects along his pathway in searching out and observing or destroying the animal. From these special interests should be selected topics for class study around which are grouped all the experience of the class. Such questions as may be raised which require further experience and observation should be answered by furthering the students' experience. This differentiation or periodic specialization may continue indefinitely and become more and more specialized, but in all cases it keeps rooted in some type area and moves in the direction of the best thought of the time. It continues unifying and cumulating from the kindergarten stage to the period of original research.

The student power of the individual at any one period of time or stage of progress is judged more by his working ability, on a given problem, than by his ability to answer any test of unrelated questions. Being able to state that running water has been an important factor in earth sculpture is very different from viewing a landscape and detecting the forces that have molded it. Adjustment to environment is worked out by knowledge and contact with environment, and the schools need to be most alert in their every effort to broaden and strengthen the student in his contact with his world-environment.

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